

## **REMARKS**

The following is in response to the Office Action dated December 21, 2004.

The Examiner has provisionally rejected claim 4-22 under the doctrine of obviousness type double patenting over claims 1-10 of copending application 09/710,309.

Applicant has filed a terminal disclaimer accordingly.

The Examiner has rejected claims 4-22 under the doctrine of obviousness type double patenting as being unpatentable over claims 1-14 of US patent 6,209,259.

Applicant has filed a terminal disclaimer accordingly.

The Examiner has rejected claims 4-22 as being obvious over Size Enlargement By Agglomeration, by Pietsch pages 134-145 in view of DE 3442317 to Schuart.

Regarding claims 18-21 the Examiner states that Wolfgang teaches a method of making seed (page 137 second paragraph) capsules in a single apparatus by tumble/agitation agglomeration operation by inherently preconditioning the seed with a binding agent while tumbling the seed in a bed of fine particulate to create layers of matter about the seed; the fine particulate being in a solid state when it comes in contact with the seed after the seed has come in contact with the binder (page 135 third paragraph, last sentence; page 135, fifth paragraph, 8<sup>th</sup> line; and page 136 section 4.2.1.1). Although Wolfgang teaches a seed, he does not explicitly teach that the seed is a plant seed. However, Schuart teaches that it is old and notoriously well known to select a plant seed to undergo agglomeration (Schuart translation title "Method of Coating Plant Seeds") for the advantage of applying fertilizers to the seed, for ease of

handling of the seeds, for time released germination of the seed. Therefore, it would have been obvious to select a plant seed as the seed taught by Wolfgang since the modification is merely the selection of a known particulate nuclei.

The claims state that a plant seed is preselected to act as a nucleus for the tumble/agitation agglomeration operation. Pietsch does not use plant seeds and does not preselect a seed to act as a nucleus. Any of the particles used for the tumble agglomeration can act as the nucleus. As shown on page 138, Pietsch defines seeds as nuclei. Pietsch is describing primary particles adhering to form an agglomerate. None of the particles described by Pietsch are plant seeds. Schuart teaches a liquid agglomeration to coat the seeds. This is different then what is taught by Pietsch. Further Pietsch teaches an agglomeration wherein all of the particles agglomerate. In the present invention the seed acts as a nucleus and the other particles agglomerate around it. There is nothing in Pietsch or Schuart which teaches to combine the references. Therefore claims 18-21 are not obvious over Pietsch in view of Schuart.

Regarding claims 4-17, the Examiner states that Wolfgang as modified teaches an agglomeration process utilizing a tumble agglomeration (page 136 section 4.2.1.1), but Wolfgang is silent on specifically identifying a pan pelletizer, disk pelletizer, balling disk, paddle mixer, horizontal pan, powder blenders, flow-jet mixer, planetary mixer, cone mixer, ribbon mixer, pin type mixer, vertical mixer, pin mixer, cone pelletizer, fluidized bed. However, these apparatuses are all old and well-known seed coating, agglomeration, or mixing machines. It would have been obvious to modify the teachings of Wolfgang with any of the machines listed in claims 4-17 since these are

merely alternate equivalent agglomeration machines that perform the same intended function of agglomerating particles with a coating and one would select a particular agglomeration machine to satisfy different economic, maintenance, and time parameters and to accommodate different types of coatings, i.e., fertilizers or nutrient coatings.

For the reasons stated above for claim 19, claims 4-17 are not obvious over Wolfgang. Further, each of these machines creates its own unique agglomerate. The present invention teaches forming an agglomerate around the seed by using the above equipment. Pietsch does not teach any of these pieces of equipment. Therefore, the claims cannot be obvious over Pietsch.

Regarding claim 22, the examiner states that Wolfgang is silent on the preconditioning and conditioning steps are repeated to add additional layers to the seed. However, it would have been obvious to modify the teachings since the modification is merely duplicating the process to provide a more comprehensive seed coat and does not present a patentably distinct limitation.

For the reasons stated above for claim 19, claim 22 is not obvious over Wolfgang.

The Examiner has rejected claims 6 and 17-21 as being anticipated by German Patent DE 3442317 to Schuart et al.

Regarding claims 17, 19, 21 and 6, the Examiner states that Schuart teaches a method of making seed capsules in a single apparatus by a tumbling/agitation agglomeration operation by preconditioning the seed is the nucleus and receives a

binding agent while tumbling the seed; conditioning the seeds by tumbling the seed in a bed of fine particulate to create layers of matter about the seed; and the fine particulate being in a solid state when it comes in contact with the seed after the seed has come in contact with the binder. (Schuart et al. English translation pages 3, 7, and 8).

The process of the present invention is classified as lift and tumble, while the process disclosed and taught by Schuart requires liquid agglomeration. The Lift and Tumble Process is defined as agglomeration by tumbling (growth). Particles are adhered together by use of balling drums, pans, cones, and mixers via impact and tumbling. The resultant shape is a sphere. Liquid agglomeration relates to a process where the liquid spray solidifies into a solid. Liquid agglomeration can use the following equipment: spray dryers, prill towers, spray/fluid bed, granulators, mixers for oil agglomeration.

Claim 19 requires that the fine particulate all is in a solid state when it comes in contact with the seed after the seed has come in contact with the binder. Schuart teaches a liquid agglomeration process where the kaolin dust is mixed with water to become a liquid prior to the dust coming in contact with the seed. Even if the Examiner were correct that some dust comes into contact with the seed, some of the material is in liquid form as stated in the translation. Therefore, a particulate that is all solid material is not taught to come in contact with the seed by Schuart. Therefore, claim 19 is not anticipated or obvious over Schuart.

The coating process of Schuart relates to a liquid coating process where a liquid coating becomes the coat. This is consistent with that of the fluidized bed technology described by Schuart. Fluidized bed systems convert a bed of solid particles into an expanded, suspended mass that has many properties of liquid per Perry's Chemical Engineer's Handbook, sixth addition. Perry's states the following regarding particle size enlargement, "Growth is associated with the liquification or softening of some portion of the bed material. The motion of the particles, one against the other, in the bed results in spherical pellets".

Schuart uses the fluidizer to coat the seeds with a mixture of liquids and dusts. Paragraph 8 on page 8 states "Solutions containing binding agents are sprayed sequentially into the fluidized bed." "Active substances in the form of dust, preferably Kaolin, are sprayed continuously into the fluidized bed...parallel to the injection of the liquids." These two components are brought together to form a liquid or emulsion as the first paragraph on page 8 clarifies by explaining "Deposited on the surfaces of the fluidized seeds are first of all the droplets of sprayed liquids and those active substances..." There is no question that these two components are emulsified when Schuart further goes on to explain in the same paragraph that "the solid substance component of the liquid agglomerated onto the seed surfaces..." Schuart, Example 1, illustrates that the water to dust ratio is greater than 3:1, while Example 2 shows a 2.8:1 ratio. The way a fluidizer works, the dust must become a component of the liquid before the fluidization occurs or else the dust would be forced out of the chamber due to required airflows.

Schuart does not teach that the material is in a total solid state when it is applied on the seed. Therefore claim 19 is not anticipated or obvious over Schuart.

For the reasons stated above, claims 17, 19, 21 and 6 are not anticipated or obvious over Schuart.

Regarding claim 18, the Examiner states that Schuart discloses wrapping more than one nucleus/seed in layers of fine particles (Schart English translation page 3).

For the reasons stated above claim 18 is not anticipated or obvious over Schuart.

Regarding claim 20, the Examiner states that Schuart teaches the preconditioning of spraying a precoated material on the seed and subsequently driving off any binding agent used to apply the particulate layers on the seed (Schart et al. English translation claims).

For the reasons stated above claim 20 is not anticipated or obvious over Schuart.

The Examiner has rejected claims 4-16 and 22 as being obvious over German Patent DE 3442317 to Schuart et al.

Regarding claims 4-16, the Examiner states that Schuart teaches an agglomeration process utilizing a tumbler or rotating drum (Schart et al. translation page 3), but Schuart is silent on specifically identifying a pan pelletizer, disk pelletizer, balling disk, paddle mixer, horizontal pan, powder blenders, flow-jet mixer, planetary mixer, cone mixer, ribbon mixer, pin type mixer, vertical mixer, pin mixer, cone pelletizer, fluidized bed. However, these apparatuses are all old and well-known seed coating or mixing machines. The Examiner states that it would have been obvious to modify the teachings of Schuart with any of the machines listed in claims 4-17 since these are merely alternate equivalent agglomeration machines that perform the same intended function of agglomerating particles with a coating and one would select a

particular agglomeration machine to satisfy different economic, maintenance, and time parameters and to accommodate different types of fertilizers or nutrient coatings.

The lift and tumble agglomeration process/machine is a different and unique process from the liquid agglomeration process. As stated above, different products are produced by using different agglomeration methods. Further the equipment used by liquid agglomeration and lift and tumble are different. The selection of a particular agglomeration machine is based on the type of process and product one wishes to produce, not to satisfy different economic and time parameters or to accommodate different types of fertilizer or nutrient coatings.

Schuart describes a liquid coating process and not an agglomeration operation comprising agitating and tumbling seeds with fine particulate in an apparatus for agglomeration which wraps the layer of fine particulate around the seed.

For the reasons stated above, claims 4-16 are not obvious over Schuart.

Regarding claim 22, the Examiner states that Schuart is silent on the preconditioning and conditioning steps are repeated to add additional layers to the seed. However, it would have been obvious to modify the teachings since the modification is merely duplicating the process to provide a more comprehensive seed coat and does not present a patentably distinct limitation.

For the reasons stated above, claim 22 is not obvious over Schuart.

Schuart on page 3 last sentence is discussing the prior art, and on page 4 Schuart discusses what is wrong with this technique. On the top of page 8, Schuart describes the dust as being the solid substance component of the liquid. Therefore, as

stated above, Schuart describes a liquid agglomeration and in fact teaches away from the claims of the present invention.

Applicant believes that the application is now in condition for allowance.

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Respectfully submitted,



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